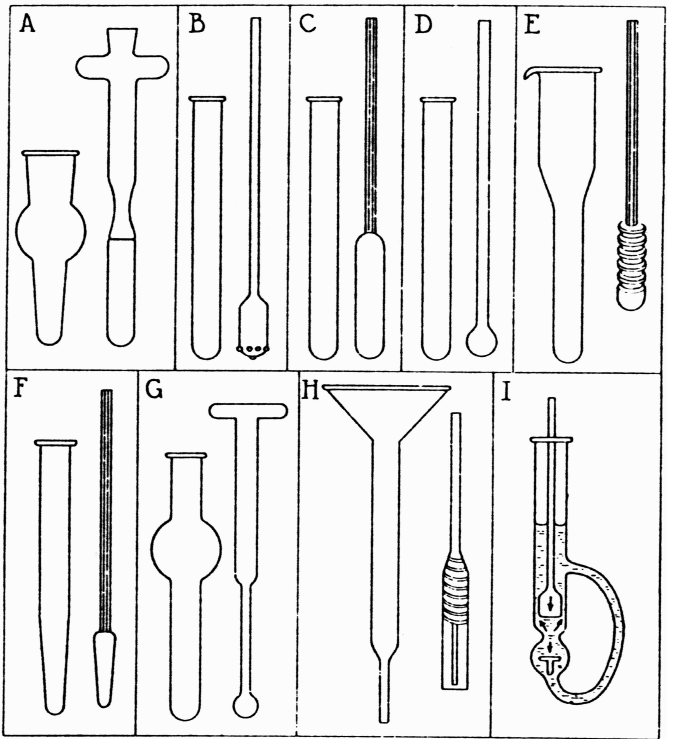

Figure 4.2. Examples of different homogenizers used to break cells prior to cell fractionation. In each, a pestle (right) is inserted and moved up and down in a tube (left). Reprinted from Vincent Allfrey (1959), The isolation of subcellular components, in J. Brachet and A. E. Mirsky (eds.), *The Cell: Biochemistry, Physiology, and Morphology*, Vol. 1. New York: Academic Press, Figure 1 on p. 214.

enzymes between different fractions). Thus, de Duve and Berthet concluded as early as 1954:

> Absolute preference should be given to homogenizers of the type described by Potter and Elvehjem (1936). Simple rubbing in a mortar, as recommended by Claude (1946), disrupts only a fraction of the cells, and mechanical choppers such as the Waring Blender cause excessive damage to the particulate components of the cells. The Potter-Elvehjem instrument is, of course, not entirely free of these drawbacks and should be used with discrimination. (p. 232)

Choice of Media

Once the cell membranes are broken, the properties of the aqueous medium into which the cell contents disperse become critical. The desired medium,